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## AMERICAN SECURITY PRICES AND INTEREST RATES

BY MONTHS, JANUARY, 1913, TO DECEMBER, 1915;

BY YEARS, 1890-1915

In May and July, 1910, April, 1911, and June, 1913, the *Journal of Political Economy* has published certain index numbers of the prices of common stocks, preferred stocks, and bonds, together with tables of bond yields, discount rates, and interest upon call loans. It has given all of these series by months, quarters, and years for the period 1890-1912. The present paper carries forward the monthly and quarterly figures from the beginning of 1913 to the close of 1915, and also assembles the annual averages for the full period of twenty-six years now covered by the tables.<sup>1</sup> A second paper, soon to follow, will discuss the special problems met in efforts to measure fluctuations in the prices of stocks, compare the leading index number here presented with the familiar *Wall Street Journal* figures, and provide several new series designed to serve uses for which the index numbers now available are ill-adapted.

### I. THE INDEX NUMBER OF COMMON STOCKS

As said in the latest of the preceding articles, 1912 was a year of marked revival in general business, but of hesitation in finance. Statistics of mineral production, railway earnings, clearings outside of New York, foreign commerce, and the like showed substantial gains; commodity prices rose rapidly, and as a whole the farmers harvested excellent crops. All the increasing activity in industrial, mercantile, and railway circles, however, roused but a faint response in the financial markets. At home the uncertainties of a "presidential year" ended in the election of a Democratic President,

<sup>1</sup> Concerning the materials and methods employed in compiling the tables, full explanations have been given in the first three of the articles mentioned above. Volume and page references to the article of June, 1913, are inserted in the present paper to show upon what tables for 1910-12 the extensions for 1913-15 should be spliced. The latter article, in turn, contains similar references to the original tables for 1890-1909. All of the figures, descriptions of methods, and analyses of results covering the years 1890-1911 are brought together in the writer's *Business Cycles*, pp. 140-214.

House, and Senate, pledged to tariff revision, banking reform, and trust control. Abroad the first Balkan war broke out, the European bourses fell into disorder, the money markets became stringent, and foreign liquidation in American securities assumed large proportions. Stock prices did indeed rise in New York between February and April, but thereafter they wavered uncertainly until November, and then closed the year with a sharp fall. The volume of stock sales was a trifle above the level of 1911, but it remained smaller than in any other year since 1898.

The new year brought new grounds for distrust. The Balkan peace congress of December failed, the war against Turkey continued until May, and was succeeded by the war between the Balkan allies, which lasted until August. Meanwhile large increases in the military establishments of Germany, France, Russia, and Austria caused forebodings of a greater war. The Huerta revolution in February, followed by the Villa uprising, threatened to involve the United States with Mexico. Domestic politics were scarcely more tranquil than international politics. Not only a new President but also a new party came into power in March. Mr. Wilson at once called Congress in special session, and all through the spring, summer, and autumn new tariff, income-tax, and banking laws were under discussion. The weather, too, was bad. While the wheat and cotton crops were fair to good, corn and oats suffered seriously from heat and drought. To the depressing influence of these non-business factors there was added the recession of business activity in Europe. The season of prosperity which had begun about 1910 passed its zenith in 1913, and developed the usual symptoms of tension in the financial markets.

Finance and general business may pursue opposite courses for a time, but not for long. The revival of American business had gathered considerable momentum by the end of 1912; but the unfavorable developments of 1913 sufficed to check it. The financial markets felt and passed on the effects of the wars and rumors of wars, the effects of the pending changes in legislation, and the effects of crop shortages at home and financial stringency abroad. As the year wore on, it grew increasingly difficult to raise capital by selling stock or issuing bonds; commercial discount rates ran

TABLE I

AVERAGE RELATIVE PRICES OF COMMON STOCKS IN FORTY TRANSPORTATION COMPANIES BY YEARS, QUARTERS, AND MONTHS, 1913-15  
 ARITHMETIC MEANS. AVERAGE ACTUAL PRICES IN 1890-99 = 100  
 (Continues tables on pp. 501-6, *Journal of Political Economy*, XXI)

	BY YEARS			
	Low		High	Spread
	Average		Average	
1912.....	236	249	13	243
1913.....	200	212	12	206
1914.....	172	184	12	178
1915.....	172	188	16	180

	BY QUARTERS							
	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Low	High	Low	High	Low	High	Low	High
1912.....	231	245	240	253	239	251	234	248
1913.....	214	227	199	214	196	208	189	200
1914.....	191	205	184	195	161	174	152	164
1915.....	165	179	169	184	166	182	189	208

	By MONTHS					CURRENT EVENTS AFFECTING THE STOCK MARKET	
	Relative Prices of Stocks				Average Call-Loan Rates Per Cent		
	Low	High	Spread	Turning-Points			
							Millions of Shares Sold
1913 January....	222	235	13	.....	8.7	3.23	Net Imports (+) or Exports (-) of Gold in Millions of Dollars — 11.0
February...	211	227	16	.....	6.8	3.31	— 7.0
March.....	209	220	11	.....	7.2	4.19	— 13.7
April.....	207	225	18	.....	8.5	3.43	+ 1.0
<p>President-elect Wilson's speeches thought to forecast radical policy toward business; Supreme Court decisions widening the application of Anti-trust law; Balkan peace conference failed, war resumed; tight money markets in Europe, New York market easy</p> <p>Attorney-General brought several new prosecutions under the Anti-trust law; seven Anti-trust laws enacted in New Jersey; decline of new orders in steel trade; railway earnings very large; decline in surplus reserve of New York banks; Madero government overthrown in Mexico</p> <p>President Wilson inaugurated; J. P. Morgan died; disastrous winds and floods in Middle West; Physical-Valuation law passed by Congress; full-crew and "blue-sky" laws passed by several states; financial strain in Berlin and London; increase of military establishments in Germany, France, Russia, and Austria</p> <p>Congress in extra session considering tariff and income-tax bills; large issues of new securities at higher interest rates; arbitration board raised wages of railway firemen; pig-iron prices weaker; financial tension in Europe relaxed early in month, but diplomatic tension became acute at end over Austrian threats against Montenegro</p>							

TABLE I—Continued

	By Months					CURRENT EVENTS AFFECTING THE STOCK MARKET		
	Relative Prices of Stocks				Average Call-Loan Rates Per Cent			
	Low	High	Spread	Turning-Points				
1913 May.....	202	213	11	.....	5.5	2.75	— 7.9	New Haven reduced dividend; St. Louis & San Francisco R.R. receivership; further weakening of steel prices; prominent Democrats threatened government intervention if wages were reduced on enactment of new tariff; peace with Turkey signed, but friction developed among Balkan States
June.....	187	205	18	Min.	9.6	2.25	+ 2.8	Supreme Court refused to declare railway rates prescribed by a state invalid because they might disturb interstate rates; Interstate Commerce Commission refused to reopen Freight-Advance case, but promised an investigation; Federal Reserve Banking bill introduced; McAdoo offered to issue emergency currency; war between Balkan allies began; European stock exchanges demoralized
July.....	193	205	12	.....	5.1	2.25	— .8	Suspension of large Pittsburgh bank; strike of railway conductors narrowly averted; crop-damage from drought; difficulty in floating new bond issues; Interstate Commerce Commission report on New Haven management; disorder in Mexico growing; increase of standing armies authorized in Germany and France
August.....	197	209	12	.....	6.1	2.25	+ 4.6	Heat and drought did further damage to crops; disquieting prospect of conflict with Mexico; cut in prices of steel products; war between Balkan States ended; financial strain in European markets relaxed

1913 September..	198	210	12	Max.	7.7	2.90	+ 4.1	Tariff and banking bills made rapid progress in Congress; Interstate Commerce Commission report on New Haven declared that confidence in management "was not justified as to either finance or safety"; federal suit against Reading Co. demanded dissolution of the "Hard-Coal Trust"; drought broken, but most crops short
October....	192	204	12	.....	7.4	3.69	+ 4.9	Tariff and income-tax bills passed; decline of net earnings of railways; new request for increase of rates; Interstate Commerce Commission suspended increases pending an investigation, but granted minor increases between Missouri River points; Mexican situation became critical; investment markets in Europe depressed
November..	191	197	6	.....	3.8	3.75	+ .4	Pronounced recession in business in United States and Europe, particularly in Germany; New York banks had deficits in reserves at beginning and end of month; railway conductors and trainmen in eastern territory granted an increase in wages by arbitrators; federal suits filed against American Can Co. and Jewelers' Trust; negotiations with Huerta broken off, Villa forces gaining ground
December..	186	199	13	Min.	7.2	4.63	- 5.5	Business depression and unemployment intensified; Federal Reserve act passed; agreement with American Telegraph & Telephone Co. indicated an administration policy of settling suits under Anti-trust law outside the courts; internal affairs of Mexico went from bad to worse
1914 January....	191	209	18	.....	10.1	2.38	+ 3.5	Volume of business continued small and unemployment widespread, but development of monetary ease in Europe and the United States led to heavy investment demand for securities; New Haven reached agreement with Department of Justice which avoided prosecution; Union Pacific declared extra dividend; Mexico defaulted interest

TABLE I—Continued

By Months						CURRENT EVENTS AFFECTING THE STOCK MARKET		
	Relative Prices of Stocks				Millions of Shares Sold		Average Call-Loan Rates Per Cent	Net Imports (+) or Exports (-) of Gold in Millions of Dollars
	Low	High	Spread	Turning-Points				
1914 February...	195	208	13	Max.	6.2	1.78	— 5.9	
March.....	188	199	11	.....	5.9	1.91	+ 5.2	
April.....	182	196	14	.....	7.1	1.83	+ 3.1	
May.....	186	195	9	.....	4.8	1.78	— 14.9	
Interstate Commerce Commission postponed for six months more decision on Rate-Advance case; improvement in steel prospects; practically all national banks entered federal reserve system; European investment markets less buoyant; embargo removed on export of arms to Mexico								
Numerous reductions or suspensions of railway dividends; stringent conditions enforced against railways seeking fresh capital; many railway employees discharged; steel trade depressed again; President recommended repeal of Panama tolls-exemption; winter wheat prospects bright								
Marines sent to Vera Cruz, war with Mexico threatened, intervention by A.B.C. powers at end of month; European selling of American securities; steel trade depressed; "Ludlow battle" in Colorado strike; Canadian Ry. Commission reduced rates in the West								
A.B.C. mediators began their sessions; failures and financial liquidation in England, France, and Russia; foreign selling of American securities; decline of exports left an unfavorable balance of trade; winter-wheat condition far above average								



1914 June.....	184	193	9	.....	4.0	1.84	-44.3	Excess of imports continued; House passed anti-trust bill and bill to regulate railway security issues; Supreme Court decisions affirmed wide powers of Interstate Commerce Commission over rates and held oil pipe lines common carriers; A.B.C. mediators adjourned without effecting a settlement in Mexico; a Chicago bank failed on the 12th and H. B. Clafin Co. on the 25th
July.....	161	191	30	.....	7.9	2.65	-30.3	President's conference with prominent business men; strike of engineers and firemen on western railways threatened; Interstate Commerce Commission report on New Haven charged maladministration; rumors of receivership for Missouri Pacific; Rock Island reorganization abandoned; Huerta resigned on the 15th; Austrian ultimatum to Serbia on the 23d; European war seemed probable by the 28th; all important stock and produce exchanges in Europe and the United States closed by the 31st
August.....	161*	165*	4*	.....	Ex- change closed	6.25	-15.1	Austria, Serbia, Russia, Germany, France, Belgium, and England at war by the 4th; all great European nations declared moratoria in some form; by end of the month German army was within 50 miles of Paris; emergency currency issued in the United States; clearing-house loan certificates authorized; Interstate Commerce Commission granted limited advance in freight rates in central territory
September..	161*	165*	4*	.....	Ex- change closed	6.00	-19.1	Battle of the Marne; Germans fell back to the Aisne and the Oise; rapid progress toward restoration of normal financial conditions in England and the United States; syndicate undertook payment of New York City's obligations maturing abroad to amount of \$80,000,000; \$100,000,000 gold pool formed; Federal Trade Commission bill passed; many dividend reductions and suspensions

\* Stock Exchange closed; figures based upon prices of July 30, largely bid and asked.

TABLE I—Continued

	By MONTHS					CURRENT EVENTS AFFECTING THE STOCK MARKET
	Relative Prices of Stock				Average Call-Loan Rates Per Cent	
	Low	High	Spread	Turning-Points		
1914 October. . . .	146*	156*	10*	Min.	6.00	Net Imports (+) or Exports (—) of Gold in Millions of Dollars —44.4
November..	148*	162*	14*	.....	5.41	— 7.1
December..	162	173	11	.....	3.38	— 4.0
1915 January. . . .	165	180	15	.....	2.13	+ 6.2

Antwerp fell, deadlock in Flanders and France; by end of month New York banks had liberal surplus reserves, retirement of emergency currency and clearing-house loan certificates began, sterling exchange declined to par; distress among cotton planters; excellent grain crops selling at high prices; Clayton Omnibus Anti-trust bill passed	Financial improvement continued; New York curb market reopened November 12, Cotton Exchange November 16, dealings in bonds on Stock Exchange resumed November 28; Democrats and Progressives lost ground in elections; western railways requested increase of rates; further dividend reductions or suspensions	Dealings in stocks resumed on Stock Exchange on the 12th, restrictions removed on the 15th; on rehearing of rate cases Interstate Commerce Commission granted 5 per cent increase except on certain heavy commodities; steel prospects brighter but production continued small and prices low	December statement showed exports exceeding imports by 132 millions; several foreign credits and loans negotiated in New York; Gold Pool dissolved; few applications under Cotton-Loan Fund; U.S. Steel Co. passed its dividend on common; volume of business restricted, but sentiment hopeful
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\* Stock Exchange closed; figures based upon bid and asked prices compiled from brokers' circulars.

1915 February...	164	176	12	.....	4.4	1.97	+11.7	Excess of exports reached 146 millions, sterling exchange dropped far below import point; German declaration of war zone, English use of neutral flags, and American protests aroused apprehension; rise of industrial "war-stocks" began; general business dull
March.....	166	181	15	.....	7.9	1.93	+24.7	Term of Congress expired on the 4th; Supreme Court held that states cannot enforce non-compensatory railway rates for certain articles on the ground of adequate profit from other business; excess of exports 174 millions; rise of cotton improved southern outlook; New York state bond sale on 4.08 per cent basis against 4.21 per cent basis in January, 1914; boom in war stocks
April.....	173	189	16	Max.	21.0	2.09	+15.4	Announcements and rumors of war orders made the basis of an extraordinary boom in industrial stocks; domestic trade expanding slowly; further rise of grain and cotton prices
May.....	168	184	16	.....	12.6	1.94	+29.9	"Lusitania" sunk on the 7th; great liquidation, particularly in "war stocks," began on the 8th, followed by dulness and then recovery as fear of break with Germany wore off; Italy entered the war on the 23d
June.....	167	180	13	.....	11.0	1.85	+49.5	Secretary Bryan's resignation on the 8th aroused fears of break with Germany, but negotiations of amicable character later restored calm; Federal Court at Trenton gave decision against government in suit for dissolution of Steel Trust; surplus reserve in New York rose above 200 millions; heavy selling of stocks on foreign account
July.....	161	175	14	Min.	14.4	1.88	+15.1	Domestic trade expanding, largely under influence of war orders and excess of exports which reached 1,094 millions for the fiscal year; German reply to "Lusitania" note characterized in American rejoinder as "very unsatisfactory"; recrudescence of speculation in "war stocks"; crop prospects favorable

TABLE I—Continued

By MONTHS						CURRENT EVENTS AFFECTING THE STOCK MARKET		
Relative Prices of Stock					Net Imports (+) or Exports (-) of Gold in Mil- lions of Dollars			
Turning-Points				Average Call-Loan Rates Per Cent				
Low	High	Spread	Turning-Points					
1915 August.....	166	185	19	.....	20.4	1.78	+60.5	Interstate Commerce Commission refused most of rate advances requested by western roads, and reduced hard-coal rates from Pennsylvania points to tidewater; sinking of the "Arabic" on 19th renewed fears of war, but Germany disavowed the act and accepted American contentions regarding treatment of liners; sterling exchange fell to \$4.55½ despite enormous special shipments of gold and securities; speculation in "war stocks" made spectacular progress Negotiations with Anglo-French Commissioners led by end of the month to loan of 500 millions; Anglo-French offensive drive on the western front; entry of Bulgaria into war foreshadowed; speculation established new high records in war "stocks" in the latter part of month Bulgaria joined the Central Powers in invasion of Serbia; premiums for prompt delivery appeared in steel trade; marked increase in railway traffic; large sales of securities on foreign account; speculative mania in "war stocks" unabated; extended in a measure to railway stocks Further expansion of business activity; freight blockade on seaboard trunk lines; stock speculation less rampant; credits for 50 millions in favor of British banks and 15 millions in favor of French industrial interests opened in New York; Serbia overrun President recommended policy of "preparedness"; harvests, except of cotton, reported large, farm prices high; Interstate Commerce Commission authorized increase of western passenger rates; railway embargo on export freight; British "mobilization" of American securities announced; demand sterling rose above 4.74; tension with Austria over sinking of "Ancona"
September..	170	187	17	.....	18.4	1.78	+40.0	
October....	180	204	24	.....	26.7	1.81	+76.7	
November..	195	213	18	Max.	17.6	1.88	+57.3	
December..	192	208	16	.....	13.7	1.94	.....	

up, and banks became conservative. Necessitous borrowers had to sell short-time notes on terms which cost them 6 per cent or more for interest. Even the state of New York, for the first time in its history, resorted to this method of raising money. Under such circumstances business enterprises limited their new undertakings as narrowly as possible. Financial stringency applied the brakes to industrial and mercantile activity.

Despite all these difficulties, the volume of business in 1913 was larger than in 1912. But the gains were confined mainly to the first six or nine months, and resulted largely from the execution of orders and contracts placed in 1912 or early in 1913. Many business enterprises began the year with their full capacity "booked" for several months to come. While these old orders were being filled, however, few new orders were coming in to take their places. The statistical record amply confirms reports of this tenor in the trade journals. The United States Steel Corporation began the year with unfilled orders of 7,930,000 tons and ended with 4,280,000 tons. Railway earnings in 1913 were larger than in 1912 from January to September, smaller from October to December; pig-iron production recorded gains in the first six months, losses in the second; substantially the same is true of the copper output; clearings outside of New York ran larger than in 1912 every month until July, and ran smaller in most months thereafter, etc. Commodity prices also indicated a trade reaction: from January to April *Bradstreet's* index number stood above its level of a year before; from May to December it stood below that level.<sup>1</sup>

If financial apprehensions started this reaction in general business, the latter presently reinforced the former. The fall in stock prices which had begun in December, 1912, ran on with scarcely a check until June, 1913. For the first time since the great depression of 1908, the index number of 40 common stocks fell below 200. The autumnal rise which often follows a summer fall did not exceed 8 points, and it was followed in turn by a renewed decline to the lowest level of the year in December.

<sup>1</sup> Reasons for believing that *Bradstreet's* is the best of the currently published American index numbers as a "business barometer" are given in *Bulletin of the United States Bureau of Labor Statistics*, No. 173, July, 1915, p. 111.

One favorable development marked the beginning of 1914: interest rates on long and short loans relaxed in Europe as well as in New York; and several large issues of securities were placed with investors on terms more favorable to the borrowers than had prevailed of late. But the relaxation of financial stress was accompanied by a further slackening of industry and commerce. During the first six months of 1914 clearings outside of New York, railway earnings, pig-iron production, and copper consumption were all lower than during the first six months of 1913; the number, total liabilities, and average liabilities of firms failing were greater; and commodity prices continued to sag. This state of affairs was mirrored in the stock market. The relaxing of financial tension immediately after New Year's Day produced a considerable increase of stock sales and a moderate rise of stock prices. But after February the losses of railway earnings and the other evidences of deepening business depression caused a reduction of sales and a fall of prices greater than the rise had been. Accordingly, the great financial crisis precipitated by the sudden outbreak of war in Europe at the end of July came in the midst of a period of depression—not, as crises are wont to come, at the end of a period of prosperity.

European stock exchanges began closing on Monday, July 27. The New York Exchange held open in the face of extraordinary liquidation until Thursday, July 30. But the strain proved too great, and the Exchange closed on Friday, July 31, not to reopen for dealings in stocks until Saturday, December 12.<sup>1</sup> During all this period there is, of course, no satisfactory record of stock prices on which to base an index number. The choice lies between dropping four months out of the series, which would leave the average figures for the year 1914 much too high, or using the best available substitutes for stock-exchange quotations.

Not long after the regular Exchange was closed, an "outlaw" market began to form, and quotations on certain stocks became current. The *Financial Review* describes the situation as follows:

In many cases [the prices] were more or less nominal, but in other cases they were based on actual dealings, though very limited in character. While

<sup>1</sup> Trading in bonds was resumed under certain restrictions on November 28.

lacking the element of exactness, these quotations have a measure of usefulness in showing the changes in sentiment from day to day.

During August and September such quotations as were current were hazy and intangible, and passed only by word of mouth. But about the middle of October printed circulars began to make their appearance, purporting to show current bid and asked prices.<sup>1</sup>

From such circulars issued by two brokerage houses, the *Financial Review* has compiled a record of stock prices for the business days October 14 to December 11, inclusive. Twenty-five of the 40 stocks included in the present index number have October and November quotations in this compilation. By means of the geometric mean variation of these prices from the corresponding prices made on the Stock Exchange in July, October and November prices have been interpolated for the remaining 15 stocks. Since no representative quotations whatever are available for August and September, recourse must be had to another shift to supply figures for these months. It became a common practice for banks and individuals who had occasion to put some value upon securities they were carrying at this time to enter them at the closing prices of July 30. That practice is followed here: the entries in the tables for August and September are made from prices actually paid, or from prices bid and asked the last day on which the Stock Exchange remained open.

When the gap in the series is bridged in this way, the lowest point in stock prices falls in October, and that low point (151) is below the bottom record made in the panic of 1907 (159). To match it one must go back fourteen years to November, 1900. But it still remains higher than the highest record reached by the index number in any month from 1890 to 1899. The brokers' circulars indicate that prices rose somewhat in November and somewhat more in the first eleven days of December. Further gains were recorded after the Stock Exchange resumed dealings in stocks on December 12. But the index number for December, based once again on regular quotations, is only a little higher than that made from the closing prices of July 30.

The financial tangles caused by the war were largely straightened out before the Stock Exchange reopened. The extraordinary

<sup>1</sup> *The Financial Review*, 1915, p. 157.

measures of relief promptly adopted in both England and America by governments and banks contributed toward this end; but so too did "the circumstance that this was the first crisis in the United States in which the situation was handled in the only proper fashion, by means of loan expansion."<sup>1</sup> At the end of October foreign exchange rates dropped below the gold-export point; in November they declined still farther, and by the end of the year they were below the gold-import point. From April to August merchandise imports exceeded exports; in September the balance turned in favor of exports, and this "favorable" balance mounted rapidly to 131 millions by December. In January the Gold Pool was dissolved, the Cotton-Loan Fund was opened with but few applications, and interest rates relaxed notably. War orders that promised large profits began to be placed, iron and steel prices turned upward, the Interstate Commerce Commission granted an increase of freight rates, and business sentiment became hopeful.

Several months went by, however, before these promises of better business began to be realized in fact. We have seen that the record of 1914 was poor even before the war began. Nevertheless, the first half of 1915 showed a smaller volume of trade than the first half of the preceding year. Country clearings were less than in 1914 every month (except May) from January to July; railway earnings were smaller from January to April, and less than 1 per cent greater from May to July; pig-iron production and the unfilled orders of the United States Steel Corporation showed losses to the end of April; building permits did not register gains until the comparison began to be made with months after the beginning of war, etc. It is only in matters like stock sales and New York clearings that an increase of business over 1914 appeared as early as March. But after midsummer the tide of business activity rose so rapidly that the comparisons for the late months of the year showed gains, not only over 1914, but also in many cases over the previous high records.

Stock prices seemed for a time to be influenced almost as much by the slow expansion of general business as by the rapid improve-

<sup>1</sup> O. M. W. Sprague, "The Crisis of 1914 in the United States," *American Economic Review*, V (September, 1915), 521.



ment in financial prospects. The index number moved up a little in January, down a trifle in February, then up a bit more in March. In that month the boom in "war stocks" began, and in April industrial stocks scored sensational gains. The transportation stocks, which alone are included in the present series, responded with a substantial advance, and the prospect seemed fair for further improvement. But on May 7 news came that the "Lusitania" had been sunk. The fear of a rupture with Germany precipitated heavy liquidation and prices fell once more. Industrials bounded up again in June and July; but railroad stocks continued to sag. By July practically the whole gain over December had been wiped out. But in August negotiations with Germany took a more favorable turn, and the improvement in general business conditions became marked. Under these favoring circumstances, the railway list moved upward rapidly. By November the index number stood above 200 again, for the first time in 21 months.

Tables II and III show that the fluctuations which have been chronicled affected all classes of transportation stocks in much the same way. All classes fell heavily in 1913, and fell again in 1914. So uniform was the fall that the seven groups of Table III did not change their order from lowest to highest. The one difference worth pointing out is that the cheap stocks suffered a relatively heavier decline in 1912-14 than the higher-priced groups. The changes in 1915 were much narrower in range and less uniform in direction when annual averages are taken. But the changes from month to month within the year all indicate an early advance, a fall after the "Lusitania" episode, and a sharp rise in the autumn.

TABLE II

AVERAGE RELATIVE PRICES OF FORTY COMMON STOCKS, CLASSIFIED ACCORDING TO THEIR AVERAGE ACTUAL PRICES IN 1890-99

(Continues table on p. 508, *Journal of Political Economy*, XXI)

	17 Stocks Selling at Less than \$25 in 1890-99	13 Stocks Selling at \$25 to \$99 in 1890-99	10 Stocks Selling at More than \$100 in 1890-99
1912. ....	278	257	165
1913. ....	234	224	135
1914. ....	190	206	122
1915. ....	197	200	127

TABLE III

AVERAGE RELATIVE PRICES OF SEVEN GROUPS OF TRANSPORTATION STOCKS IN  
1912-15

(Continues table on p. 508, *Journal of Political Economy*, XXI)

	5 North Atlantic Railways	4 Coal- carrying Railways	6 Southern Railways	8 Middle- Western Railways	7 North- western Railways	5 Pacific Railways	5 Express, Steamship, and Telegraph Companies
1912....	138	364	347	173	210	397	130
1913....	115	320	295	147	175	353	91
1914....	96	304	256	111	149	309	85
1915....	109	310	251	111	150	305	91

## II. THE INDEX NUMBER OF PREFERRED STOCKS

Preferred stocks shared with common stocks both in the decline from 1912 to 1914 and in the rise in the autumn of 1915. The chief difference is the familiar one in degree of steadiness. From the highest point touched in 1912 to the lowest point touched in 1914 preferred stocks fell 56 points and common 92 points. Similarly on the up grade from the lowest point in 1914 to the highest point in 1915, preferred stocks gained only 15 points while common stocks gained 58 points.<sup>1</sup>

TABLE IV

AVERAGE RELATIVE PRICES OF PREFERRED AND COMMON STOCKS IN TEN RAILWAYS  
BY YEARS, QUARTERS, AND MONTHS, 1913-15

ARITHMETIC MEANS. AVERAGE ACTUAL PRICES IN 1890-99=100

(Continues tables on pp. 509-10, *Journal of Political Economy*, XXI)

	BY YEARS							
	Low		High		Spread		Average	
	Preferred	Common	Preferred	Common	Preferred	Common	Preferred	Common
1912.....	120	208	125	221	5	13	123	213
1913.....	102	178	107	190	5	12	104	184
1914.....	80	148	88	162	8	14	84	155
1915.....	76	153	86	171	10	18	81	162

<sup>1</sup> These figures are made from averages of the high and low figures by months. See Table VIII below. The common stocks referred to are stocks in the 10 railways whose preferred stocks are quoted.

TABLE IV—*Continued*

		BY QUARTERS							
		First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
		Low	High	Low	High	Low	High	Low	High
1913	Preferred..	110	115	101	107	100	105	95	99
	Common..	190	202	174	189	177	188	171	180
1914	Preferred..	94	103	86	91	72	81	69	78
	Common..	166	182	160	170	137	153	131	145
1915	Preferred..	75	85	78	89	71	82	81	90
	Common..	141	157	150	165	146	167	173	196

		BY MONTHS											
		1913				1914				1915			
		Preferred		Common		Preferred		Common		Preferred		Common	
		Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Jan.....		114	119	199	210	96	106	169	189	73	83	136	155
Feb.....		109	115	186	202	96	105	166	185	77	83	142	157
Mar.....		107	112	185	194	91	99	162	172	75	88	145	160
April.....		106	112	183	198	85	95	157	172	80	95	152	169
May.....		102	107	179	189	87	90	162	169	78	87	150	165
June.....		95	101	162	181	85	88	162	169	77	85	148	161
July.....		99	104	172	185	73	86	137	167	70	82	143	161
Aug.....		100	107	179	192	71*	78*	137*	146*	71	82	147	165
Sept.....		102	105	180	189	71*	78*	137*	146*	71	81	150	176
Oct.....		97	102	173	182	68†	77†	126†	138†	76	88	160	189
Nov.....		95	99	172	178	68†	77†	128†	142†	83	92	178	201
Dec.....		94	98	169	180	71	79	138	154	84	92	181	198

\* Stock Exchange closed; figures based upon closing prices of July 30, largely bid and asked.

† Stock Exchange closed; figures based upon bid and asked prices compiled from brokers' circulars.

### III. INTEREST RATES UPON BOND INVESTMENTS AND SHORT LOANS

Since the latest instalment of these figures was published, three of the railways whose bonds have been used for computing interest rates have fallen into financial difficulties: the Chicago & Eastern Illinois, the Wabash, and the Missouri, Kansas & Texas. To continue using the bonds of these roads would change the series of bond yields from an index of the current rate of interest on high-class investments to an index of the credit of three embarrassed corporations. On the other hand, to drop these three bonds, or merely to

substitute three new bonds of higher standing would compromise comparisons with earlier dates. The least unsatisfactory way of meeting the difficulty is to substitute new bonds of the "gilt-edged" class, but to multiply their yields by factors which make them equal to the yields on the three discarded series, before the credit of the latter had been seriously impaired. The date chosen for beginning the change is January, 1913; the new securities used, their actual yields on that date, and the factors by which these yields have been multiplied to make them equal those of the discarded bonds are as follows:

	Yield January, 1913	Multiplier Used
Atchison, Topeka & Santa Fe, general gold 4's, due 1995, replacing Chicago & Eastern Illinois bond.....	4.11%	1.102
Pennsylvania R.R., consolidated gold 4's, due 1948, replacing Missouri, Kansas & Texas bond.....	3.90%	1.087
Reading, general gold 4's, due 1997, replacing Wabash bond.....	4.12%	1.1163

Another necessary explanation concerns the period when the Stock Exchange was closed in 1914. The *Financial Review* gives no quotations for bonds from the "outlaw" market in October and November such as it gives for stocks. But dealings in bonds were resumed by the Stock Exchange on Saturday, November 28. On this day and on the following Monday only four of the ten bonds in the present list were quoted. Nevertheless I have made up November figures on the basis of these scanty dealings, interpolating figures for the remaining six bonds on the basis of their December quotations and the changes which the four bonds quoted in both months underwent between the end of November and December. For the months August to October, inclusive, I have found no better course than to suppose that bonds were generally "carried" at the closing prices of July 30.

The most notable fact concerning rates of interest yielded by investments in bonds in 1913-15 is that they have continued the rise that has been under way with few interruptions since 1901-2. For reasons explained in the preceding papers of this series, the risk imputed to the investment has probably varied less in the case of the West Shore bond than in the case of any other security in our

list. If so, that bond is our best gauge of changes in "pure" interest. In the panic year 1893 West Shore bonds sold on a 4.02 per cent basis. From this point the yield gradually declined to 3.54 per cent in 1901, then rose to 3.97 per cent in the second panic year, 1907; fell again to 3.89 per cent in the revival of 1909, and then went up to 4.43 per cent in 1915. That is, interest rates on long investments of substantially uniform security stand much higher now than at any time since 1890. If we take the average yields of the ten bonds, we find that the general course of fluctuations since 1902 has been like that of the West Shore yields. Starting at 3.77 per cent in 1902, the average yield mounted to 4.22 per cent in 1907, fell to 4.00 per cent in 1909, and then advanced with scarcely a check to 4.56 per cent in 1915. But the rise since 1902 in this case has not been equal to the fall before that date, a fall which was due in large part to improvements in railway credit. Still, the average yield in 1915 is larger than in any year since 1894.

TABLE V

ACTUAL AND RELATIVE RATES OF INTEREST YIELDED BY INVESTMENTS IN TEN RAILWAY BONDS BY YEARS 1913-15

(Continues table on p. 511, *Journal of Political Economy*, XXI)

	Actual Rates Per cent				Relative Rates Average Actual Rates in 1890-99 = 100		
	1912	1913	1914	1915	1913	1914	1915
Atchison, Topeka & Santa Fe adjusted to replace Chicago & Eastern Illinois.....	4.44	4.67	4.72	4.78	93	94	95
Pennsylvania adjusted to replace Missouri, Kansas & Texas....	4.22	4.35	4.35	4.47	89	89	91
Reading adjusted to replace Washash.....	4.58	4.72	4.77	4.80	99	100	101
Chesapeake & Ohio.....	4.35	4.59	4.60	4.73	98	98	101
Chicago, St. Paul, Minneapolis & Omaha.....	4.23	4.54	4.39	4.49	99	95	98
Chicago, Burlington & Quincy...	4.18	4.48	4.32	4.40	99	95	97
Central Railroad of New Jersey...	4.12	4.31	4.29	4.36	97	96	98
Chicago, Milwaukee & St. Paul..	4.08	4.29	4.25	4.50	101	100	106
New York, Chicago & St. Louis..	4.04	4.26	4.39	4.60	106	109	114
West Shore Railroad.....	4.02	4.21	4.32	4.43	110	113	116
First five.....	4.37	4.57	4.57	4.65	96	95	97
Second five.....	4.09	4.31	4.32	4.46	103	103	106
All.....	4.23	4.44	4.44	4.56	99	99	102

TABLE VI

ACTUAL AND RELATIVE RATES OF INTEREST ON BONDS, COMMERCIAL PAPER, AND  
CALL LOANS IN NEW YORK BY YEARS, QUARTERS, AND MONTHS, 1913-15

(Continues table on p. 512, *Journal of Political Economy*, XXI)

	ACTUAL RATES OF INTEREST PER CENT					RELATIVE RATES OF INTEREST AVERAGE ACTUAL RATES IN 1890-99 = 100				
	Bonds		Commercial Paper		Call Loans at Stock Ex- change	Bonds		Commercial Paper		Call Loans at Stock Ex- change
	West Shore R.R.	Av. of 10 Rail- road Bonds	4-6 Months	60-90 Days		West Shore R.R.	Av. of 10 Rail- road Bonds	4-6 Months	60-90 Days	
YEARS										
1912.....	4.02	4.23	5.41	4.74	3.52	105	94	90	103	107
1913.....	4.21	4.44	6.19	5.59	3.22	110	99	103	122	98
1914.....	4.32	4.44	5.47	4.79	3.43	113	99	91	104	104
1915.....	4.43	4.56	4.01	3.45	1.92	116	102	67	75	58
QUARTERS										
1913-1st.....	4.08	4.30	5.73	5.17	3.55	107	96	96	113	108
2d.....	4.23	4.47	6.17	5.60	2.81	111	99	103	122	85
3d.....	4.22	4.50	6.57	5.93	2.50	110	100	110	120	76
4th.....	4.33	4.51	6.31	5.05	4.07	113	100	105	123	124
1914-1st.....	4.30	4.41	4.64	4.08	2.02	112	98	78	89	61
2d.....	4.28	4.37	4.43	3.82	1.82	112	97	74	83	55
3d.....	4.29	4.43	6.54	5.81	4.97	112	99	109	127	151
4th.....	4.43	4.55	6.28	5.43	4.93	116	101	105	118	150
1915-1st.....	4.41	4.53	4.23	3.66	2.01	115	101	71	80	61
2d.....	4.41	4.54	4.31	3.68	1.96	115	101	72	80	60
3d.....	4.51	4.66	3.90	3.34	1.81	118	104	65	73	55
4th.....	4.38	4.50	3.62	3.11	1.88	114	100	60	68	57
MONTHS										
1913-Jan.....	4.05	4.28	5.50	4.93	3.23	106	95	92	108	98
Feb.....	4.08	4.29	5.50	4.91	3.31	107	96	92	107	101
March.....	4.10	4.32	6.25	5.75	4.19	107	96	104	125	127
April.....	4.16	4.39	6.20	5.53	3.43	109	98	104	121	104
May.....	4.26	4.40	5.88	5.36	2.75	111	100	98	117	84
June.....	4.26	4.53	6.38	5.88	2.25	111	101	107	128	68
July.....	4.26	4.53	6.66	6.06	2.25	111	101	111	132	68
Aug.....	4.20	4.50	6.63	6.00	2.25	110	100	111	131	68
Sept.....	4.21	4.46	6.45	5.78	2.90	110	99	108	126	88
Oct.....	4.24	4.47	6.38	5.69	3.69	111	99	107	124	112
Nov.....	4.35	4.52	6.25	5.56	3.75	114	100	104	121	114
Dec.....	4.40	4.53	6.30	5.68	4.63	115	101	105	124	141
1914-Jan.....	4.34	4.47	5.09	4.53	2.38	113	99	85	99	72
Feb.....	4.26	4.38	4.38	3.84	1.78	111	98	73	84	54
March.....	4.30	4.38	4.44	3.88	1.91	112	98	74	85	58
April.....	4.27	4.37	4.28	3.73	1.83	112	97	71	81	56
May.....	4.28	4.37	4.50	3.88	1.78	112	97	75	85	54
June.....	4.28	4.37	4.50	3.84	1.84	112	97	75	84	56
July.....	4.30	4.40	5.03	4.40	2.65	112	98	84	96	81
Aug.....	4.29	4.44	7.00	6.34	6.25	112	99	117	138	190
Sept.....	4.29	4.44	7.60	6.70	6.00	112	99	127	146	182
Oct.....	4.29	4.44	7.56	6.44	6.00	112	99	126	141	182
Nov.....	4.40	4.61	6.44	5.50	5.41	118	103	108	120	164
Dec.....	4.49	4.60	4.85	4.35	3.38	117	102	81	95	103
1915-Jan.....	4.41	4.55	4.38	3.84	2.13	115	101	73	84	65
Feb.....	4.41	4.52	4.38	3.75	1.97	115	100	73	82	60
March.....	4.40	4.54	3.93	3.38	1.93	115	101	66	74	59
April.....	4.34	4.51	4.25	3.66	2.09	113	100	71	80	64
May.....	4.44	4.54	4.34	3.72	1.94	116	101	72	81	59
June.....	4.45	4.57	4.33	3.65	1.85	116	102	72	77	56
July.....	4.47	4.64	3.81	3.45	1.88	117	103	64	71	57
Aug.....	4.53	4.66	4.01	3.53	1.78	118	104	67	77	54
Sept.....	4.32	4.67	3.88	3.25	1.78	118	104	65	71	54
Oct.....	4.41	4.57	3.91	3.22	1.81	115	102	65	70	55
Nov.....	4.38	4.47	3.45	2.98	1.88	114	100	58	65	57
Dec.....	4.36	4.44	3.50	3.13	1.94	114	99	58	68	59

One expects bond yields to decline in depression, to decline a little farther in the early stages of business revival, then to rise as prosperity waxes, and to attain their maximum during the crisis. Some such movements can be traced in the monthly figures for 1913-15; for example, the rise of yields in the war crisis (partly concealed by the imperfections of our data in August-October, 1914); the decline in the following months of depression, and the new decline when business began to revive in the autumn of 1915. But on the whole, in recent years the influence of changing business conditions upon bond yields has been overshadowed by the drift toward a higher level of fluctuations.

Short-time interest rates, on the contrary, have drifted downward since the middle of 1913 (when commercial paper had to meet the competition of short-time notes issued in lieu of bonds) with the notable exception of the two months following the outbreak of war. Even the high rates of August to November did not give 1914 as high an average as 1913. In 1915 commercial-paper rates on indorsed paper for 60-90 days have been less than in any year since 1894, and on good single-name paper less than in any year covered by these tables. Call-loan rates also have been low, but not so low as in 1894-95, 1897, and 1904. This coexistence of extremely low rates for "money" and extremely high rates for bonds is one of the most striking features of the present business situation. While business depression has kept the demand for bank loans small, the reduction of reserve requirements by the Federal Reserve act and the unprecedented imports of gold have enormously increased the lending power of the banks. Of course these technical banking factors have little influence upon the supply of funds for long-time investments, and the demand for such funds abroad and at home has been affected by the issue of war-loans.

#### IV. THE INDEX NUMBER OF BONDS

The relative prices of bonds shown by the following tables are made by dividing the yield of each bond on any given date into its average yield in 1890-99. Hence the index numbers of bond prices involve the use of no new data; they are merely an additional set of deductions drawn from the tables of bond yields given in the

preceding section. Of course, the explanations made there regarding the changes in the list of bonds used, and regarding the imperfections of the data for August to November, 1914, apply here also.

Table VII shows that every bond in the list fell in price from 1912 to 1913, that five of the ten fell again in 1914, and that all fell once more in 1915. Table VIII, with its data for quarters and months, shows that this decline has been interrupted several times. There was a brief and slight appreciation of bond prices in July to September, 1913, and a longer and larger gain from December, 1913, to April, 1914—the sort of gain that depression is supposed to bring. On this level of April bonds hung until the war broke out, when they fell 4–6 per cent—judging by June and November quotations—not very much less than dividend-paying and preferred stocks. A slight recuperation after the crisis culminated in April, 1915, and was followed after the sinking of the “Lusitania” by a renewed decline to less than the crisis level in August and September. But with the multiplication of evidences of business revival in the autumn, bonds advanced again in October, November, and December.

TABLE VII

AVERAGE RELATIVE PRICES OF TEN RAILWAY BONDS BY YEARS, 1912–15  
COMPUTED ON THE BASIS OF AVERAGE ACTUAL YIELDS IN 1890–99

(Continues table on p. 514, *Journal of Political Economy*, XXI)

	1912	1913	1914	1915
Atchison, Topeka & Sante Fe adjusted to replace Chicago & Eastern Illinois. . . .	112.8	107.3	106.1	104.8
Pennsylvania adjusted to replace Missouri, Kansas & Texas. . . . .	116.3	112.8	112.8	109.8
Reading adjusted to replace Wabash. . . .	104.2	101.1	100.0	99.4
Chesapeake & Ohio. . . . .	108.0	102.4	102.2	99.4
Chicago, St. Paul, Minneapolis & Omaha	108.8	101.4	105.4	102.5
Chicago, Burlington & Quincy. . . . .	108.4	101.2	104.9	103.0
Central Railroad of New Jersey. . . . .	108.1	103.4	103.8	102.2
Chicago, Milwaukee & St. Paul. . . . .	104.4	99.3	100.2	94.6
New York, Chicago & St. Louis. . . . .	99.9	94.8	92.0	87.8
West Shore Railroad. . . . .	95.2	90.9	88.4	86.4
First five. . . . .	110.0	105.0	105.3	103.2
Second five. . . . .	103.2	97.9	97.9	94.8
All. . . . .	106.6	101.5	101.6	99.0



TABLE VIII

RELATIVE PRICES OF BONDS AND STOCKS BY YEARS, QUARTERS, AND MONTHS, 1913-15  
(Continues table on pp. 515-16, *Journal of Political Economy*, XXI)

	RELATIVE PRICES OF BONDS COMPUTED ON BASIS OF AVERAGE ACTUAL YIELDS IN 1890-99		RELATIVE PRICES OF STOCKS COMPUTED ON BASIS OF AVERAGE ACTUAL PRICES IN 1890-99 = 100			
	West Shore Bond	Average of 10 Railway Bonds	Average of 10 Dividend-paying Stocks	Average of 10 Preferred Stocks	Average of 10 Common Stocks	Average of 40 Common Stocks
<b>YEARS</b>						
1912.....	95	107	141	123	215	243
1913.....	91	102	121	104	184	206
1914.....	88	102	107	84	155	178
1915.....	86	99	109	81	162	180
<b>QUARTERS</b>						
1913—1st.....	94	105	132	113	196	221
2d.....	90	101	123	104	182	206
3d.....	91	100	118	103	183	202
4th.....	88	100	111	97	175	195
1914—1st.....	89	102	114	99	174	198
2d.....	89	103	111	88	165	189
3d.....	89	102	105	76	145	167
4th.....	86	99	100	73	138	158
1915—1st.....	87	100	108	80	149	172
2d.....	87	99	108	84	158	177
3d.....	85	97	104	76	157	174
4th.....	87	100	115	86	184	199
<b>MONTHS</b>						
1913—Jan.....	94.5	105.4	134.5	116.1	204.7	228.5
Feb.....	93.8	105.2	132.6	111.9	194.3	219.0
March.....	93.3	104.4	130.1	109.7	189.8	214.5
April.....	92.0	102.7	127.5	109.0	190.8	216.0
May.....	89.8	100.5	123.8	104.6	184.0	207.5
June.....	89.8	99.5	118.8	98.0	171.1	196.0
July.....	89.9	99.5	121.0	101.3	178.4	199.0
Aug.....	91.1	100.2	117.0	103.4	185.5	203.0
Sept.....	90.9	101.1	115.5	103.7	184.4	204.0
Oct.....	90.3	100.9	112.9	99.5	177.3	198.0
Nov.....	88.0	99.9	110.8	96.8	175.1	194.0
Dec.....	87.0	99.5	109.0	96.0	174.0	192.5
1914—Jan.....	88.2	101.0	113.8	101.0	179.0	200.0
Feb.....	89.8	102.9	115.0	100.1	175.4	201.5
March.....	89.0	102.9	113.4	94.9	166.9	193.5
April.....	89.6	103.3	111.2	90.1	164.1	189.0
May.....	89.4	103.1	111.6	88.4	165.8	190.5
June.....	89.4	103.3	110.4	86.5	165.4	188.5
July.....	89.0	102.4	106.6	79.5	152.1	176.0
Aug.....	89.2*	101.5*	103.5*	74.6*	141.6*	163.0*
Sept.....	89.2*	101.5*	103.5*	74.6*	141.6*	163.0*
Oct.....	89.2*	101.5*	96.8†	72.4†	131.7†	151.0†
Nov.....	85.0	97.8	97.8†	72.7†	135.3†	155.0†
Dec.....	85.2	98.1	105.2	75.2	146.1	167.5

\* Stock Exchange closed; figures based on closing prices of July 30, largely bid and asked.

† Stock Exchange closed; figures based on quotations in brokers' circulars.

TABLE VIII—*Continued*

	RELATIVE PRICES OF BONDS COMPUTED ON BASIS OF AVERAGE ACTUAL YIELDS IN 1890-99		RELATIVE PRICES OF STOCKS COMPUTED ON BASIS OF AVERAGE ACTUAL PRICES IN 1890-99=100			
	West Shore Bond	Average of 10 Railway Bonds	Average of 10 Dividend-paying Stocks	Average of 10 Preferred Stocks	Average of 10 Common Stocks	Average of 40 Common Stocks
1915—Jan. ....	86.8	99.2	109.2	77.9	145.3	172.5
Feb. ....	86.8	99.9	107.1	79.8	149.4	170.0
March. ....	87.0	99.4	106.9	81.5	152.5	173.5
April. ....	88.2	100.1	110.7	87.4	160.5	181.0
May. ....	86.2	99.4	106.3	82.7	157.7	176.0
June. ....	86.0	98.6	106.7	81.0	154.5	173.5
July. ....	85.6	97.3	102.7	75.9	151.7	168.0
Aug. ....	84.5	96.7	106.8	76.5	156.1	175.5
Sept. ....	84.7	96.6	103.9	76.0	162.7	178.5
Oct. ....	86.8	98.6	112.8	81.7	174.3	192.0
Nov. ....	87.4	100.9	117.8	87.3	189.3	204.0
Dec. ....	87.8	101.5	115.9	87.7	189.4	200.0

This same Table VIII facilitates the comparison of fluctuations in the prices of bonds and stocks of various grades. The general story is that on the basis of annual averages all classes of securities fell and fell heavily from 1912 to 1914. Further, bonds and preferred stocks had lower averages in 1915 than in 1914, while common stocks moved up a trifle. In the last year the common stocks alone retained any considerable part of the great gains scored by American securities in 1897-1902. Preferred stocks and West Shore bonds were well below their average prices of 1890-99, the average prices of 10 railway bonds were just about at that level, and the 10 dividend-paying stocks were but little above. Even common stocks had been half overtaken by the more continuous rise of commodity prices, if we may trust *Bradstreet's* index number as shown in Table IX.<sup>1</sup>

<sup>1</sup> This series is introduced because the United States Bureau of Labor Statistics has not yet published its index number of wholesale prices for 1915. *Bradstreet's* index number is based on prices on the first day of each month in the calendar year. The method of reducing this series to the 1890-99 basis is explained in the *Bulletin of the United States Bureau of Labor Statistics*, No. 173, p. 94.

TABLE IX

RELATIVE PRICES OF BONDS, STOCKS, AND COMMODITIES BY YEARS, 1890-1915  
ARITHMETIC MEANS. AVERAGE ACTUAL PRICES IN 1890-99=100

YEAR	BONDS			STOCKS				COMMODITIES	
	United States 4's of 1907 and 1925	West Shore R.R.	Average of 10 Railway Bonds	10 Dividend-paying Stocks	Preferred Stocks in 10 Railways	Common Stocks in 10 Railways	Common Stocks in 40 Transportation Companies	145 Staples	BRAD-STREET'S INDEX NUMBER REDUCED TO THE 1890-99 BASIS
1890...	114	99	96	104	108	113	121	114	.....
1891...	104	97	93	100	104	113	113	113	.....
1892...	99	98	97	105	115	124	123	106	111
1893...	91	95	95	96	87	80	93	105	108
1894...	99	99	98	94	82	82	82	96	96
1895...	96	100	101	95	87	87	85	93	92
1896...	88	99	100	92	85	81	77	89	85
1897...	101	103	103	94	94	90	84	89	88
1898...	103	104	107	102	107	97	94	93	94
1899...	112	107	114	118	130	126	128	103	103
1900...	127	107	115	121	133	144	134	111	113
1901...	140	108	119	142	178	262	211	110	108
1902...	140	108	120	157	191	305	250	114	113
1903...	139	103	114	136	163	238	201	114	114
1904...	132	103	115	136	156	215	192	114	113
1905...	138	103	118	158	181	278	250	116	116
1906...	135	101	114	159	180	291	267	122	121
1907...	127	96	107	129	138	206	204	130	127
1908...	113	97	108	126	130	195	201	121	115
1909...	110	98	113	150	169	280	277	124	122
1910...	101*	97	109	142	148	248	254	131	129
1911...	103*	96	108	137	138	233	248	130	125
1912...	114*	95	107	141	123	215	243	134	132
1913...	100*	91	102	121	104	184	206	131	132
1914...	98†	88	102	107	84	155	178	.....	128
1915...	99*	86	99	109	81	162	180	.....	141
Averages									
1890-99	100	100	100	100	100	100	100	100	(100)
1900-09	130	102	114	141	162	241	219	118	116
1910-15	103	92	105	126	113	200	218	.....	131

\* Computed from average yields in January, April, July, and October, as given in the *Report of the Comptroller of the Currency*.

† Computed from average yields in January, April, July, and from yield at prices of July 30, the Stock Exchange being closed in October.

#### V. CONSPECTUS OF SECURITY PRICES AND INTEREST RATES BY YEARS, AND BY PHASES OF BUSINESS CYCLES, 1890-1915

It is convenient to have the general results of these investigations assembled in a single place. The index numbers of security prices and the interest rates both actual and relative are therefore

presented for the whole period 1890-1915 in four tables, of which two show averages by years and two by phases of business cycles.

TABLE X

RELATIVE PRICES OF BONDS AND STOCKS IN SEASONS OF BUSINESS PROSPERITY, CRISIS, AND DEPRESSION, 1890-1915

Arithmetic Means—Average Actual Prices in 1890-99=100

	BONDS		STOCKS		
	W.S. R.R.	Av. of 10 Rail- road Bonds	Av. of 10 Pre- ferred Stocks	Av. of 10 Com- mon Stocks	Av. of 40 Com- mon Stocks
Jan., 1890—July, 1890—Prosperity.....	100	97	113	123	131
Aug., 1890—Dec., 1890—Minor crisis.....	97	94	103	108	115
Jan., 1891—July, 1891—Depression.....	97	93	100	103	107
Aug., 1891—Aug., 1892—Prosperity.....	98	96	115	127	123
Sept., 1892—Oct., 1893—Approach of crisis...	97	97	106	112	116
May, 1893—Oct., 1893—Major crisis.....	94	93	78	80	84
Nov., 1893—Mar., 1895—Severe depression...	99	98	81	82	81
April, 1895—Sept., 1895—Revival.....	100	102	93	94	91
Oct., 1895—June, 1896—Renewed depression..	100	101	88	84	82
July, 1896—Oct., 1896—Free-silver campaign.	98	97	79	74	71
Nov., 1896—June, 1897—Depression.....	102	102	86	83	77
July, 1897—Feb., 1898—Revival.....	104	105	103	98	93
Mar., 1898—April, 1898—Spanish war impending	101	104	98	85	87
May, 1898—Sept., 1899—Prosperity.....	106	111	121	113	113
Oct., 1899—Dec., 1899—Minor crisis.....	107	113	132	127	133
Jan., 1900—Sept., 1900—Slight depression....	107	114	131	138	130
Oct., 1900—Oct., 1902—Prosperity.....	108	119	180	269	219
Nov., 1902—July, 1904—"Rich man's panic"...	103	114	162	228	195
Aug., 1904—Aug., 1905—Revival.....	103	118	177	263	232
Sept., 1905—Sept., 1906—Prosperity.....	102	116	182	290	265
Oct., 1906—Sept., 1907—Approach of crisis...	98	110	157	242	231
Oct., 1907—Dec., 1907—Major crisis.....	93	101	122	161	166
Jan., 1908—Sept., 1908—Severe depression...	97	107	124	184	190
Oct., 1908—Dec., 1909—Revival.....	98	112	166	272	269
Jan., 1910—Dec., 1911—Reaction.....	97	109	143	241	251
Jan., 1912—Dec., 1912—Revival.....	95	107	123	215	243
Jan., 1913—July, 1914—Depression.....	90	102	100	178	201
Aug., 1914—Nov., 1914—War crisis.....	88*	101*	74†	138†	158†
Dec., 1914—July, 1915—Renewed depression..	86	99	80	152	173
Aug., 1915—Dec., 1915—Revival.....	86	99	82	174	190

\* Figures for August to October made from closing prices of July 30; figures for November made from Stock Exchange quotations for November 28 and 30, supplemented by interpolations based on December prices.

† Figures for August and September made from closing prices of July 30; figures for October and November made from quotations in brokers' circulars.

The dividing lines between these successive phases are in many cases difficult to draw within two or three months. In cases of doubt I

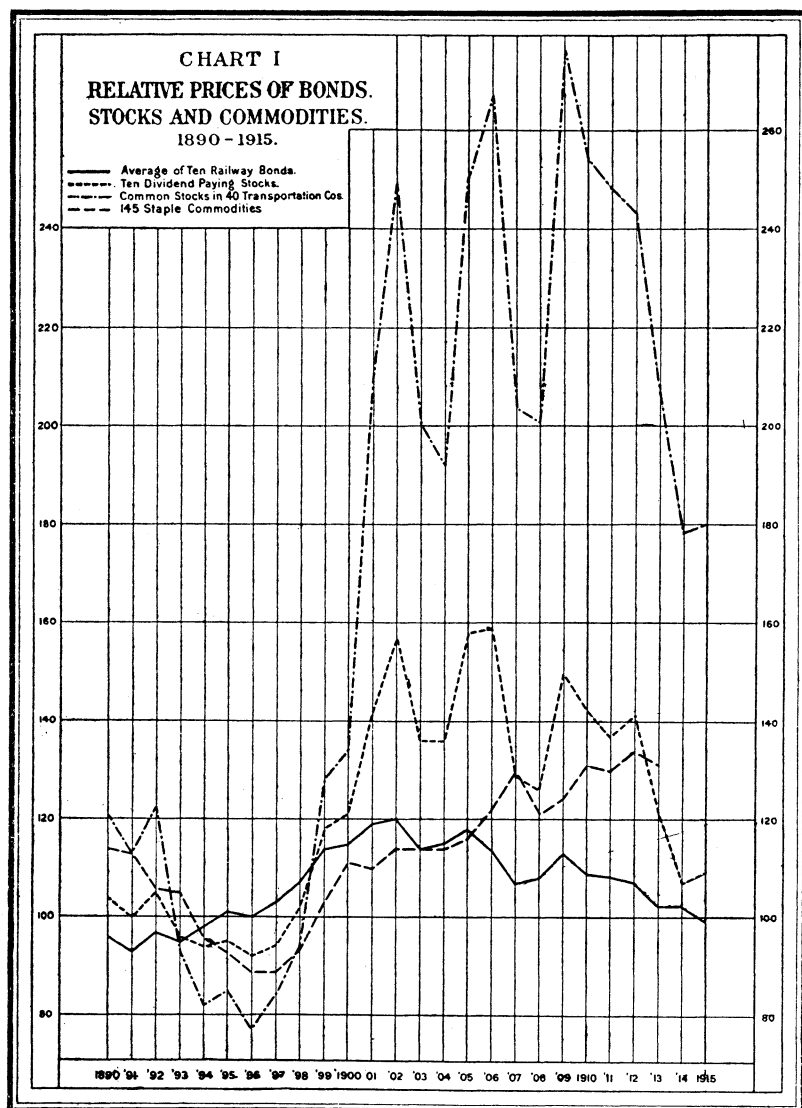


CHART II  
RELATIVE PRICES OF  
40 TRANSPORTATION STOCKS  
BY MONTHS AND  
AVERAGE RELATIVE PRICES OF  
10 RAILWAY BONDS  
1890-1915

Vertical lines connect the averages of the highest and lowest relative prices of the 40 stocks each month.  
Horizontal curve shows the average prices of 10 railway bonds each month.

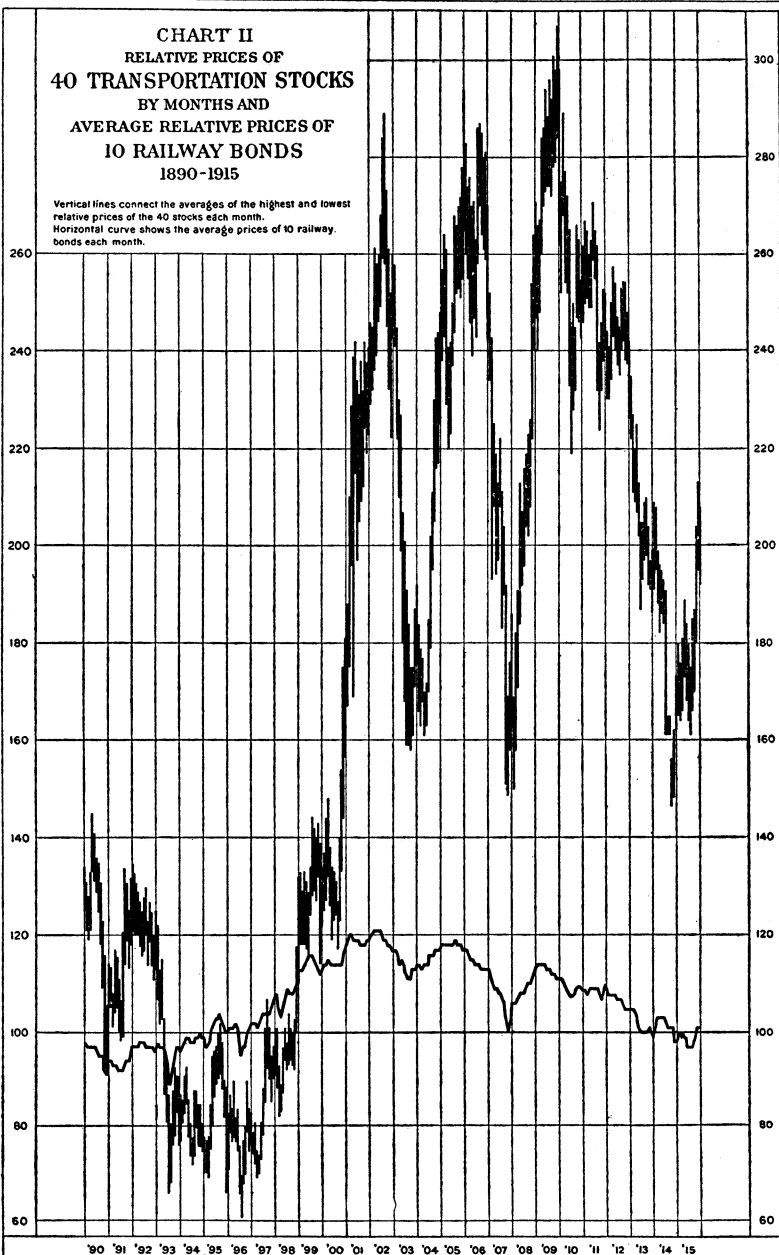


TABLE XI

ACTUAL AND RELATIVE RATES OF INTEREST ON BONDS, COMMERCIAL PAPER, AND CALL LOANS IN NEW YORK BY YEARS, 1890-1915

Year	ACTUAL RATES OF INTEREST						RELATIVE RATES OF INTEREST. AVERAGE ACTUAL RATES 1890-99 = 100				
	Bonds			Commercial Paper			Bonds			Commercial Paper	
	U.S. 4's of 1907 and 1945	West Shore R.R.	Av. of 10 Railroad Bonds	Per Cent	4-6 Months	60-90 Days	U.S. 4's of 1907 and 1945	West Shore R.R.	Av. of 10 Railroad Bonds	4-6 Months	60-90 Days
1890.....	2.43	3.88	4.72	Per Cent	6.89	5.64	88	101	105	115	123
1891.....	2.05	3.96	4.85	5.81	6.50	5.41	96	103	107	109	118
1892.....	2.80	4.02	4.64	3.42	7.02	6.04	101	105	105	90	88
1893.....	3.04	4.02	4.75	4.58	7.62	6.86	101	105	105	127	150
1894.....	2.70	3.87	4.59	1.06	5.22	3.94	101	101	102	87	66
1895.....	2.89	3.82	4.48	1.85	5.73	3.64	105	100	99	96	79
1896.....	3.14	3.85	4.54	1.77	7.02	5.76	114	101	100	117	126
1897.....	2.73	3.72	4.38	1.77	4.72	3.57	99	97	97	79	78
1898.....	2.69	3.69	4.21	1.77	5.31	3.82	97	96	93	89	83
1899.....	2.47	3.56	3.96	5.04	5.48	4.95	89	93	88	92	88
1900.....	2.18	3.57	3.95	2.03	5.71	4.38	79	93	88	95	96
1901.....	1.97	3.54	3.79	3.98	5.41	4.24	71	93	85	90	93
1902.....	1.98	3.55	3.77	5.22	5.75	4.88	72	93	84	96	106
1903.....	1.99	3.70	3.96	5.43	6.21	5.43	72	97	88	104	118
1904.....	2.09	3.72	3.92	3.79	5.13	4.24	76	97	87	86	93
1905.....	2.00	3.70	3.82	1.78	5.17	4.35	73	97	85	86	95
1906.....	2.04	3.80	4.02	6.44	5.24	5.08	74	99	88	104	124
1907.....	2.18	3.97	4.22	6.44	6.55	6.27	79	104	94	109	137
1908.....	2.44	4.05	4.16	1.97	6.42	4.42	88	103	93	83	96
1909.....	2.52	3.89	4.00	1.97	4.67	3.86	91	102	89	78	84
1910.....	2.74*	3.96	4.14	2.97	5.01	5.01	99*	103	92	96	109
1911.....	2.68*	3.97	4.16	2.57	4.71	4.02	97*	104	93	79	88
1912.....	2.43*	4.02	4.23	3.52	5.41	4.74	88*	105	94	90	107
1913.....	2.75*	4.21	4.44	3.22	6.10	5.59	100*	110	94	103	122
1914.....	2.81†	4.32	4.44	3.43	5.47	4.79	102†	113	99	91	104
1915.....	2.80†	4.43	4.56	1.92	5.01	3.45	101†	116	102	67	75
Averages—1890-99.....	2.76	3.83	4.51	3.20	5.90	4.58	100	100	100	100	100
1900-09.....	2.14	3.74	3.95	4.05	5.61	4.78	77	98	88	93	104
1910-15.....	2.70	4.15	4.33	2.94	5.25	4.60	98	109	96	88	100

\* Computed from average yields for January, April, July, and October as given by the *Reports of the Comptroller of Currency*.

† Computed from average yields for January, April, and July, and from the yield of July 30, Stock Exchange being closed in October.

TABLE XII

ACTUAL AND RELATIVE RATES OF INTEREST ON BONDS, COMMERCIAL PAPER, AND CALL LOANS IN SEASONS OF BUSINESS PROSPERITY, CRISIS, AND DEPRESSION, 1890-1915

	ACTUAL RATES OF INTEREST				RELATIVE RATES OF INTEREST AVERAGE ACTUAL RATES 1890-99 = 100			
	Bonds		Commercial Paper		Bonds		Commercial Paper	
	West Shore R.R.	Av. of 10 Railroad Bonds	4-6 Months	60-90 Days	West Shore R.R.	Av. of 10 Railroad Bonds	4-6 Months	60-90 Days
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Jan., 1890-July, 1890-Prosperity.....	3.83	4.65	6.41	5.17	100	103	107	113
Aug., 1890-Dec., 1890-Minor crisis.....	3.94	4.82	7.60	6.56	103	107	127	143
Jan., 1891-July, 1891-Depression.....	3.96	4.87	6.57	5.38	103	108	117	117
Aug., 1891-Oct., 1891-Prosperity.....	3.92	4.70	5.51	4.39	102	104	92	94
Sept., 1891-April, 1891-Approach of crisis..	4.05	4.86	6.24	5.38	103	103	104	117
May, 1893-Oct., 1893-Major crisis.....	4.00	4.86	9.23	8.19	103	104	154	179
Nov., 1893-Mar., 1893-Severe depression....	3.87	4.60	5.43	3.25	101	102	92	71
April, 1893-Sept., 1893-Revival.....	3.81	4.43	5.29	3.31	100	98	88	72
Oct., 1893-June, 1896-Renewed depression	3.81	4.45	6.59	4.47	100	99	110	108
July, 1896-Oct., 1896-Free-silver campaign	3.92	4.67	8.10	7.47	102	104	135	163
Nov., 1896-June, 1897-Depression.....	3.77	4.44	4.83	3.62	96	98	81	79
July, 1897-Feb., 1898-Revival.....	3.69	4.20	4.81	3.61	96	95	80	61
Mar., 1898-April, 1898-Spanish war impend- ing.....	3.78	4.35	6.84	5.22	99	96	114	114
May, 1898-Sept., 1899-Prosperity.....	3.61	4.05	5.12	3.65	94	90	86	92
Oct., 1899-Dec., 1899-Minor crisis.....	3.59	4.00	6.73	5.45	94	89	112	119
Jan., 1900-Sept., 1900-Slight depression....	3.57	3.96	5.68	4.27	93	88	95	103
Oct., 1900-Oct., 1901-Prosperity.....	3.54	3.79	5.56	4.52	93	84	93	99
Nov., 1902-July, 1904-"Rich man's panic"	3.70	3.95	5.82	5.09	97	88	97	111
Aug., 1904-Aug., 1905-Revival.....	3.70	3.84	4.03	4.06	97	85	82	89
Sept., 1905-Sept., 1906-Prosperity.....	3.76	3.90	6.66	5.42	98	86	101	118
Oct., 1906-Sept., 1907-Approach of crisis..	3.90	4.10	6.57	6.06	102	91	110	108
Oct., 1907-Dec., 1907-Major crisis.....	4.13	4.45	7.33*	6.06	108	99	132	159
Jan., 1908-Sept., 1908-Severe depression....	3.96	4.20	5.05	4.50	103	93	122*	164
Oct., 1908-Dec., 1909-Revival.....	3.90	4.01	4.61	3.99	102	89	84	98
Jan., 1910-Dec., 1911-Reaction.....	3.97	4.15	5.23	4.52	104	92	77	87
Jan., 1912-Dec., 1912-Revival.....	4.02	4.23	5.41	4.74	105	94	87	99
Jan., 1913-July, 1914-Depression.....	4.24	4.42	5.61	5.01	111	98	90	103
Aug., 1914-Nov., 1914-War crisis.....	4.34†	4.48†	7.15	6.25	114†	100	94	109
Dec., 1914-July, 1915-Renewed depression	4.43	4.56	4.28	3.70	116	102	72	136
Aug., 1915-Dec., 1915-Revival.....	4.44	4.56	3.75	3.22	116	102	63	70

\* Nominal.

† Figures for August to November made from closing prices of July 30; figures for November made from Stock Exchange quotations for November 28 and 30, supplemented by interpolations based on December prices.



have followed indications from the financial markets rather than from general business. In studying these tables it is important to remember that comparisons of successive averages sometimes give a wrong impression of the direction in which prices were moving. For example, a long period of depression in which prices sag from a high to a low level often has a higher average price than the succeeding period of revival in which prices start upward again from the low level reached at the end of the depression. Such misleading impressions can be guarded against only by study of the monthly figures from which the present summaries have been prepared.

The general trend of commodity and security prices is shown most plainly in the two charts which follow Table X.

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